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avives@eresmas.net
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Notes on Scythrididae recorded during 2012 in southern and western Kazakhstan, with descriptions of six new species (Lepidoptera: Scythrididae)

K. Nupponen

Abstract

A list of 38 species embracing 514 specimens of the family Scythrididae from southern and western Kazakhstan is presented. The material was collected during 24-IV / 20-V-2012 and 1-IX-29-IX-2012. Six new species are described: *Scythris constricta* Nupponen, sp. n., *S. distinctella* Nupponen, sp. n., *S. mutanenorum* Nupponen, sp. n., *S. niemineni* Nupponen, sp. n., *S. sigmoides* Nupponen, sp. n. and *S. syrdaryae* Nupponen, sp. n.. The previously unknown females of *Scythris angustibasella* Nupponen, 2011, *S. aralensis* Nupponen, 2012, *S. nielseni* Passerin d'Entrèves & Roggero, 2004, and *S. vadimi* Sachkov, 2002 are described. Thirteen species are reported as new to Kazakhstan. The known distribution range of each species is given, and the taxonomic position of some species is briefly discussed.

KEY WORDS: Lepidoptera, Scythrididae, new species, first records, Turanian region, Kazakhstan.

Notas sobre Scythrididae recogidos durante 2012 en el sur y oeste de Kazajistán, con descripción de seis nuevas especies (Lepidoptera: Scythrididae)

Resumen

Se presenta una lista de 38 especies abarcando 514 especímenes de la familia Scythrididae del sur y oeste de Kazajistán. El material fue colectado durante el 24-IV / 20-V-2012 y el 1-IX-29-IX-2012. Se describen seis nuevas especies: *Scythris constricta* Nupponen, sp. n., *S. distinctella* Nupponen, sp. n., *S. mutanenorum* Nupponen, sp. n., *S. niemineni* Nupponen, sp. n., *S. sigmoides* Nupponen, sp. n. y *S. syrdaryae* Nupponen, sp. n.. Se describen las hembras previamente desconocidas de *Scythris angustibasella* Nupponen, 2011, *S. aralensis* Nupponen, 2012, *S. nielseni* Passerin d'Entrèves & Roggero, 2004 y *S. vadimi* Sachkov, 2002. Trece especies se citan como nuevas para Kazajistán. Se da el rango de distribución conocido de cada especie y la posición taxonómica de alguna especie es brevemente discutida.

PALABRAS CLAVE: Lepidoptera, Scythrididae, nuevas especies, primeros registros, región del Turán, Kazajistán.

Introduction

Since 2008, I have quite intensively explored different parts of the Turanian region to collect material of the family Scythrididae for study. To deliver the new data for further research as soon as possible, the results of the studies have been published annually (NUPPONEN 2009, 2010, 2011, 2012). The present article is based on new materials of Scythrididae collected during two Finnish-Russian expeditions to southern and western Kazakhstan in April-May and September 2012.

Material and methods

The Finnish-Russian expeditions to Kazakhstan were made during 24-IV / 20-V-2012 and 1-IX / 29-IX-2012. The investigated area during the spring trip covered the Emba River basin, the Mugozhary mountain range, the Barsuki desert, north shore of the Aral Sea, the Syr-Darya valley eastwards to Turkestan, the Karatau Mountains, and the Muyunkum desert. In the autumn, a few specimens of scythridids were discovered in the Aralsk district, the Emba River basin and the Mangustau range. The collecting site habitats were mainly various kinds of deserts, semideserts and desert steppes at low altitudes (Figs. 1-6).

Altogether 38 species embracing 514 specimens of scythridids were recorded during the trips. The material was collected by artificial light at night and netting during daytime.

List of scythridid species

The species are listed alphabetically in generic and specific order. The known distribution of each species is given.

Apostibes griseolineata Walsingham, 1907

Kazakhstan, 43º 32’ 52” N 67º 30’ 09” E, 170 m, Syr-Darya river, tugai forest, Besaryk village 12 km WSW, 1-V-2012, 2 ♂♂, K. Nupponen leg.; Kazakhstan, 44º 17’ 05” N 66º 34’ 45” E, 140 m, Baigakum 5 km E, sands, 10-V-2012, 1 ♂, K. Nupponen leg.; Kazakhstan, 46º 42’ 47” N 61º 48’ 19” E, 70 m, Aralsk town 15 km SE, 12-V-2012, 1 ♂, K. Nupponen leg. Genitalia slide: K. Nupponen prep. no. 4/3-I-2013.

Distribution: Afghanistan, Algeria, Israel, Kazakhstan, Libya, Saudi-Arabia, Tajikistan, Tunisia, Uzbekistan.

Falkovitshella asthena (Falkovitsh, 1972)

Kazakhstan, 46º 20’ 21” N 59º 41’ 49” E, 45 m, Aral Sea, N shore, Tamshima well, 28-IV-2012, 3 ♂♂, K. Nupponen leg.; Kazakhstan, 44º 47’ 42” N, 65º 45’ 20” E, 125 m, Kyzylorda town 17 km E, 30-IV-2012, 28 ♂♂, 6 ♀♀, K. Nupponen leg.; Kazakhstan, 44º 24’ 39” N 68º 40’ 07” E, 190 m, Muyunkum sands, Suzak settlement 40 km N, 4-V-2012, 5 ♂♂, K. Nupponen leg.; Kazakhstan, 44º 17’ 05” N 66º 34’ 45” E, 140 m, Baigakum 5 km E, sands, 10-V-2012, 4 ♂♂, K. Nupponen leg. 34 genitalia preparations preserved in glycerol.

Distribution. Kazakhstan, Turkmenistan, Uzbekistan.

Scythris angustibasella Nupponen, 2011

Kazakhstan, 48º 55’ 29” N 58º 18’ 49” E, 300 m, Emba village 17 km NE, 20-V-2012, 4 ♂♂, 2 ♀♀, K. Nupponen leg. Genitalia slide: K. Nupponen prep. no. 3/2-I-2013 (♀).

Distribution: W Kazakhstan.

Remarks: The species was previously known only by the holotype. The hitherto unknown female genitalia of the species are illustrated and described below.

Female genitalia (Figs. 16-17): Sterigma rectangular, 1.5 x higher than wide. Ostium situated medially at anterior third of sterigma, anteriorly edged by sickle-shaped sclerotization. Sternum VII quadrangular, posterior margin slightly concave and medially with circular structure. Apophyses anteriores 0.8 x length of apophyses posteriores.

Scythris aralensis Nupponen, 2012

Kazakhstan, 47º 43’ 28” N 61º 27’ 10” E, 100 m, Aralsk town 110 km N, 15-V-2012, 2 ♂♂, 2 ♀♀, K. Nupponen leg.; SW Kazakhstan, 42º 57’ 23” N 54º 41’ 21” E, 115 m, Ustyurt Nature Reserve,

Kendyrli, 20-V-2011, 1 ♂, K. Nupponen leg. Genitalia slide: K. Nupponen prep. no. 1/30-XII-2012 (♀). One genitalia preparation preserved in glycerol.

Distribution: W & SW Kazakhstan.

Remarks: The hitherto unknown female genitalia of the species are illustrated and described below. For further notes on the species, see NUPPONEN (2012).

Female genitalia (Figs. 18-19): Sterigma subrectangular, almost 4 x higher than wide, posterior corners slightly elongated; ostium rather large, circular, situated sub-posteriorly at sterigma. Sternum VII subrectangular, 1.2 x wider than high; posterior margin medially slightly incurved; anterior margin straight with narrow transverse sclerotization. Apophyses anteriores 0.7 x length of apophyses posteriores.

Scythris arenicola Nupponen, 2005

Kazakhstan, 48º 40' 31" N 57º 56' 06" E, 200 m, Kumzhargan sands by Emba river, 25-IV-2012, 1 ♂, K. Nupponen leg. (Fig. 10).

Distribution: W Kazakhstan, Russia (S Ural).

Remarks: The species was previously known only from the type locality in the southern Urals. **New to Kazakhstan**. See also Remarks of *S. distinctella* Nupponen, sp. n. below.

Scythris astragali Falkovitsh, 1969

Kazakhstan, 46º 42' 47" N 61º 48' 19" E, 70 m, Aralsk town 15 km SE, 12-V-2012, 12 ♂♂, 2 ♀♀, K. Nupponen leg. One genitalia preparation preserved in glycerol.

Distribution: Kazakhstan, Turkmenistan, Uzbekistan.

Remark: For further notes on *S. astragali* and the genus *Belophora* Falkovitsh, 2011, see NUPPONEN (2012).

Scythris bagdadiella Amsel, 1949

Kazakhstan, 44º 47' 42" N 65º 45' 20" E, 125 m, Kyzylorda town 17 km E, 30-IV-2012, 2 ♀♀, K. Nupponen leg.; Kazakhstan, 43º 32' 52" N 67º 30' 09" E, 170 m, Syr-Darya river, tugai forest, Besaryk village 12 km WSW, 1-V-2012, 5 ♂♂, 1 ♀, K. Nupponen leg.; Kazakhstan, 43º 08' 29" N 67º 51' 51" E, 185 m, Syr-Darya river, tugai forest, Turkestan town 35 km SW, 8-V-2012, 2 ♂♂, 1 ♀, K. Nupponen leg.; Kazakhstan, 44º 17' 05" N 66º 34' 45" E, 140 m, Baigakum 5 km E, sands, 10-V-2012, 2 ♂♂, K. Nupponen leg.

Distribution: Afghanistan, Algeria, Iraq, Kazakhstan, Russia (S Ural), Turkey, Uzbekistan.

Scythris brandti Passerin d'Entrèves & Roggero, 2008

Kazakhstan, 43º 32' 52" N 67º 30' 09" E, 170 m, Syr-Darya river, tugai forest, Besaryk village 12 km WSW, 1-V-2012, 2 ♂♂, K. Nupponen leg. Genitalia slide: K. Nupponen prep. no. 1/3-I-2013.

Distribution: N Afghanistan, Kazakhstan.

Remarks: The species was previously known only by the holotype from North Afghanistan. The present record extends the known distribution range of *S. brandti* about 800 km to the northwest. **New to Kazakhstan.**

Scythris brunneofasciella Nupponen & Junnilainen, 2000

Kazakhstan, 48º 55' 29" N 58º 18' 49" E, 300 m, Emba village 17 km NE, 20-V-2012, 1 ♀, K. Nupponen leg.

Distribution: W Kazakhstan, Russia (S Ural).

Remarks: The species was previously known only by two specimens from the type locality in the southern Urals. **New to Kazakhstan**.

Scythris caballoides Nupponen, 2009

Kazakhstan, 48º 40' 31" N 57º 56' 06" E, 200 m, Kumzhargan sands by Emba river, 25-IV-2012,

1 ♂, K. Nupponen leg.; Kazakhstan, 48º 33’ 50” N 57º 36’ 20” E, 190 m, Kumzhargan sands by Emba river, near Zhagabulak village, 26-IV-2012, 3 ♂♂, 3 ♀♀, 17-V-2012, 1 ♂, K. Nupponen leg.; Kazakhstan, 43º 32’ 52” N 67º 30’ 09” E, 170 m, Syr-Darya river, tugai forest, Besaryk village 12 km WSW, 1-V-2012, 3 ♂♂, K. Nupponen leg.; Kazakhstan, 43º 08’ 29” N 67º 51’ 51” E, 185 m, Syr-Darya river, tugai forest, Turkestan town 35 km SW, 8-V-2012, 1 ♂, K. Nupponen leg.

Distribution: Kazakhstan, Uzbekistan.

Scythris capitalis (Erschoff, 1874)

Kazakhstan, 43º 41’ 38” N 68º 49’ 38” E, 860 m, East Karatau Mts., Kashkarata river, Shalakkurgan settlement 30 km SW, 4-V-2012, 9 ♂♂, K. Nupponen leg.

Distribution: Afghanistan, Iran, Kazakhstan, Kyrgyzstan, Turkey, Turkmenistan, Tajikistan, Uzbekistan.

Scythris caroxylella Falkovitsh, 1969

Kazakhstan, 46º 42’ 47” N 61º 48’ 19” E, 70 m, Aralsk town 15 km SE, 12-V-2012, 1 ♂, K. Nupponen leg.; Kazakhstan, 46º 46’ 58” N 61º 22’ 15” E, 170 m, Aralsk town 25 km W, 13-V-2012, 10 ♂♂, 1 ♀, K. Nupponen leg.; SW Kazakhstan, 43º 33’ 53” N 51º 45’ 19” E, -90 m, Karagie salt lake, 15-IX-2012, 1 ♀, K. Nupponen leg.; SW Kazakhstan, 44º 24’ 37” N 51º 04’ 42” E, 40 m, Mangustau, chalk canyon by Caspian Sea coast, 16-IX-2012, 1 ♀, K. Nupponen leg. Two genitalia preparations preserved in glycerol.

Distribution: Kazakhstan, Tajikistan, Uzbekistan.

Scythris cirra Falkovitsh, 1969

Kazakhstan, 44º 47’ 42” N 65º 45’ 20” E, 125 m, Kyzylorda town 17 km E, 30-IV-2012, 2 ♂♂, 1 ♀, K. Nupponen leg.; Kazakhstan, 44º 24’ 39” N 68º 40’ 07” E, 190 m, Muyunkum sands, Suzak settlement 40 km N, 4-V-2012, 1 ♂, K. Nupponen leg.

Distribution: Kazakhstan, Kyrgyzstan, Mongolia, Turkmenistan, Uzbekistan.

Scythris clavella (Zeller, 1855)

Kazakhstan, 48º 55’ 29” N 58º 18’ 49” E, 300 m, Emba village 17 km NE, 18-V-2012, 2 ♂♂, 3 ♀♀, K. Nupponen leg.; Kazakhstan, 48º 55’ 29” N 58º 18’ 49” E, 470-520 m, N Mugozhary Mts., 19-V-2012, 7 ♂♂, 6 ♀♀, K. Nupponen leg.; Kazakhstan, 48º 55’ 29” N 58º 18’ 49” E, 300 m, Emba village 17 km NE, 20-V-2012, 1 ♂, 3 ♀♀, K. Nupponen leg.

Distribution: C and S Europe east to SW Altai; N, W and SE Kazakhstan, Kyrgyzstan.

Scythris constricta Nupponen, sp. n.

Type material Holotype ♂ (Fig. 7): Kazakhstan, 48º 55’ 29” N 58º 18’ 49” E, 300 m, Emba village 17 km NE, 20-V-2012, K. Nupponen leg. In coll. T. & K. Nupponen. Paratype: 1 ♂: Idem. Genitalia slide: K. Nupponen prep. no. 7/2-I-2013. In coll. T. & K. Nupponen.

Diagnosis: Externally *S. constricta* Nupponen, sp. n. is quite easy to separate from other scythridids known to occur in the same region. It resembles *S. olschwangi* Nupponen & Nupponen, 2000, but the moth is much smaller, and the forewings are narrower with more uniform transverse spots. The asymmetrical male genitalia of *S. constricta* are somewhat similar to those of *S. braschiella* (Hofmann, 1898) and *S. bubaniae* Walsingham, 1907, but differ from those in details, like a stout and cylindrical phallus, medially bent valvae, and unmistakeable shape of segments VII-VIII with bunch of pegs medioposteriorly at sternum VII.

Description: Wingspan 8-8.5 mm. Back of the head dark brown; gradually paler towards pale brown front, scattered pale brown scales laterally. Haustellum cream white. Scape and thorax dark brown. Collar and neck tuft brown, slightly paler than thorax. Flagellum dark brown, half length of forewing. Labial palp: segments I and II cream white, segment III dark brown with a few cream white

scales at upper surface. Legs: femur brownish white, tarsus and tibia brown (tibia darker). Abdomen dorsally mixed with dark brown and lead grey; ventral side basally white, segments VI-VIII cream white. Forewing dark brown, with three irregular cream white transverse spots edged by scattered pale brown scales: narrow spots basally and at 0.7, and broad one at 0.4; few blackish brown scales in fold forming indistinct and medially cut off longitudinal streak at basal 2/3 of forewing. Hindwing fuscous.

Male genitalia (Figs. 20-21): Asymmetrical. Uncus a subrectangular posteriorly sclerotized and incurvate plate, attached to tegumen by irregular formations. Gnathos reduced to small labiate sclerotization. Phallus 0.4 x length of valva, stout, cylindrical, posteriorly sclerotized. Valvae basally fused, long and slender, bent at middle, apical half tapered, tip more or less pointed. Sternum VIII rectangular, narrow and more or less membranous; anteriorly near corners nail-like small processes directed backwards. Tergum VII subpentagonal, 1.5 x wider than high, margins reinforced; medioposteriorly a small semicircular process furnished with a bunch of stout pegs. Tergum VIII twisted, consists of two lateral plates connected to each other by a narrow belt.

Female genitalia: Unknown.

Bionomy: The specimens were swept in the afternoon sunshine on low vegetation with a low *Artemisia* species as a dominant plant. The habitat is a steep southern slope in a chalk steppe (Fig. 1).

Distribution: W Kazakhstan.

Etymology: Lat. *constrictus* = narrowed. The species name alludes to the slender valva in the male genitalia.

Remark: *S. constricta* Nupponen, sp. n. is tentatively placed in the heterogeneous *laminella* species-group.

Scythris dicroa Falkovitsh, 1972

Kazakhstan, 44º 17’ 05” N 66º 34’ 45” E, 140 m, Baigakum 5 km E, sands, 10-V-2012, 10 ♂♂, K. Nupponen leg. Two genitalia preparations preserved in glycerol.

Distribution: Kazakhstan, Uzbekistan.

Scythris distinctella Nupponen, sp. n.

Type material Holotype ♀ (Fig. 8): Kazakhstan, 47º 26’ 04” N 60º 49’ 32” E, 150 m, Malye Barsuki sands, Karachokat village 3 km NW, 14-V-2012, K. Nupponen leg. In coll. T. & K. Nupponen. Paratypes: (2 ♂♂ (Fig. 9), 1 ♀): Ibidem, 14-V-2012, 1 ♀, 15-V-2012, 2 ♂♂, K. Nupponen leg. Genitalia slides: K. Nupponen prep. no. 6/2-I-2013 (♂), 2/2-I-2013 (♀). In coll. T. & K. Nupponen.

Diagnosis: *S. distinctella* Nupponen, sp. n. is a sibling species of *S. arenicola* Nupponen, 2005. Externally *S. distinctella* differs from *S. arenicola* by darker brown forewings with a very distinct white streak (rather indistinct and beige in *arenicola*). The genitalia of the two species are slightly but clearly different. In the male genitalia of *S. distinctella*, posterior processes of tergum VIII are twice longer and parallel (diverging in *arenicola*), the valvae are slightly narrower and the gnathos is shorter with more elongated distal sclerotization. In the female genitalia of *S. distinctella*, the sterigma is triangular (subrectangular in *arenicola*), and sternum VII is posteriorly more elongated with only a small labiate sclerotization.

Description: Wingspan 10-11 mm. Head, collar, haustellum, scape, neck tuft and labial palp cream white, more or less mixed with pale brown. Flagellum 0.6 x length of forewing, dark brown, sparsely mixed with grey. Thorax brown with scattered pale brown scales. Legs: femur white, tarsus and tibia cream white, tibia mixed with brown. Abdomen dorsally pale fuscous, ventrally cream white. Forewing dark brown; scattered white scales at dorsal third of the wing and in apical area; broad, distinct and sharp-edged white streak in fold from base to apex. Hindwing basally white, apical third pale fuscous.

Male genitalia (Figs. 22-23): Uncus reduced. Gnathos asymmetrical, thick, basally wide; distal portion strongly sclerotized, foot-shaped. Phallus thick, straight, post-medially swollen, basally a little thicker than distally. Valva fused at base, inner margin triangularly extended; posterior half with numerous stout pegs, a bunch of them spatulate at middle of inner margin. Sternum VIII

subrectangular, 3 x wider than high. Tergum VIII subquadrangular, posteriorly with two long, parallel processes; anterior margin concave.

Female genitalia (Figs. 24-25): Sterigma triangular, tip sclerotized and distally blunt. Sternum VII subrectangular, 1.2 x higher than wide, posteriorly elongated; medioposteriorly blunt with small labiate sclerotization. Apophyses anteriores 0.4 x length of apophyses posteriores.

Bionomy: The specimens were swept on low vegetation in sunshine, both in the morning and late afternoon. The larval host might be either *Artemisia* sp. or *Astragalus* sp., as both of them were rather abundant at the collecting site. The habitat is a large and almost virgin sand dune area with a very rich flora and fauna (Fig. 2). The species occurs sympatrically with *S. mutanenorum* Nupponen, sp. n. (see below).

Distribution: W Kazakhstan.

Etymology: Lat. *distinctus* = distinct. The species name alludes to the forewing pattern, which are more strongly expressed than those of a closely related *S. arenicola*.

Remarks: The external appearance of *S. arenicola* Nupponen, 2005 is illustrated for comparison (Fig. 10). *S. distinctella* Nupponen, sp. n. is placed in the *terekholensis* species-group. PASSERIN d'ENTREVES & ROGGERO (2012) doubted inclusion of *S. arenicola* and a few other species in the *caramani*-group, and left them in the *terkholensis*-group. Their conclusion may be correct, but the results should be confirmed by phylogenetic framework, and preferably supported by barcodes, as some of the characteristics overlap between the two groups.

Scythris elenae Nupponen, 2000

Kazakhstan, 48º 55' 29" N 58º 18' 49" E, 300 m, Emba village 17 km NE, 20-V-2012, 20 ♂♂, 8 ♀♀, K. Nupponen leg. Genitalia slide: K. Nupponen prep. no. 5/3-I-2013 (♂).

Distribution: W Kazakhstan, Russia (S Ural).

Remarks: The species was previously known by a few specimens from two localities in the southern Urals. **New to Kazakhstan**.

Scythris fissurella Bengtsson, 1996

SW Kazakhstan, 44º 11' 17" N 51º 53' 13" E, 420 m, Mangustau, W Karatau range, Otpan Mts., 18-IX-2012, 1 ♀, K. Nupponen leg. Genitalia slide: K. Nupponen prep. no. 5/30-XII-2012.

Distribution: Afghanistan, Iran, W Kazakhstan, Oman, Pakistan, Russia (Lower Volga region), Sudan, Yemen.

Remarks: **New to Kazakhstan**. The range of the species generally covers the southern part of the Irano-Turanian region. A few years ago the species was surprisingly recorded from the Lower Volga district, about 2000 km to the north from its hitherto known range (NUPPONEN, 2007). However, the present record fills the gap in the range. Probably the species inhabits a wide area of lowlands around the Caspian Sea.

Scythris ghaemii Bengtsson & Huemer, 2003

Kazakhstan, 43º 32' 52" N 67º 30' 09" E, 170 m, Syr-Darya river, tugai forest, Besaryk village 12 km WSW, 1-V-2012, 1 ♂, K. Nupponen leg. Genitalia slide: K. Nupponen prep. no. 3/3-I-2013.

Distribution: N Iran, Kazakhstan, S Turkmenistan (Kopet-Dagh Mts.).

Remarks: The present record extends the known distribution range of *S. ghaemii* about 1000 km to the northeast. **New to Kazakhstan**. In the original description of *S. ghaemii*, the genitalia illustrations represent those of *S. pruinata* Falkovitsh, 1972 (BENGTSSON & HUEMER, 2003). The confusion was corrected later (BENGTSSON, 2006).

Scythris haloxylella Falkovitsh, 1969

Kazakhstan, 44º 17' 05" N 66º 34' 45" E, 140 m, Baigakum 5 km E, sands, 10-V-2012, 1 ♂, 1 ♀, K. Nupponen leg. One genitalia preparation preserved in glycerol.

Distribution: Kazakhstan, Turkmenistan, Uzbekistan.

Scythris kabulella Passerin d'Entrèves & Roggero, 2011

Kazakhstan, 44º 47' 42" N 65º 45' 20" E, 125 m, Kyzylorda town 17 km E, 30-IV-2012, 1 ♂, K. Nupponen leg. Genitalia slide: K. Nupponen prep. no. 2/3-I-2013.

Distribution: E Afghanistan, Kazakhstan.

Remarks: The species was previously known only by the holotype from East Afghanistan.The present record extends the known distribution range of *S. kabulella* about 1200 km to the north-northwest. **New to Kazakhstan**.

Scythris karvoneni Nupponen, 2010

Kazakhstan, 46º 20' 21" N 59º 41' 49" E, 45 m, Aral Sea, N shore, Tamshima well, 28-IV-2012, 1 ♂, 1 ♀, K. Nupponen leg.; Kazakhstan, 46º 13' 23" N 62º 03' 01" E, 70 m, Aralsk town 70 km SSE, 11-V-2012, 1 ♂, K. Nupponen leg.; Kazakhstan, 46º 42' 47" N 61º 48' 19" E, 70 m, Aralsk town 15 km SE, 12-V-2012, 1 ♂, K. Nupponen leg.; Kazakhstan, 46º 46' 58" N 61º 22' 15" E, 170 m, Aralsk town 25 km W, 13-V-2012, 3 ♂♂, 1 ♀, K. Nupponen leg.; Kazakhstan, 47º 26' 23" N 60º 49' 04" E, 150 m, Malye Barsuki sands, Karachokat village 5 km NW, 14-V-2012, 1 ♂, 5 ♀♀, K. Nupponen leg.; Kazakhstan, 47º 43' 28" N 61º 27' 10" E, 100 m, Aralsk town 110 km N, 15-V-2012, 3 ♂♂, 8 ♀♀, K. Nupponen leg. Seven genitalia preparations preserved in glycerol.

Distribution: Kazakhstan, Uzbekistan.

Scythris mutanenorum Nupponen, sp. n.

Type material Holotype ♂ (Fig. 11): Kazakhstan, 47º 26' 04" N 60º 49' 32" E, 150 m, Malye Barsuki sands, Karachokat village 3 km NW, 14-V-2012, K. Nupponen leg. In coll. T. & K. Nupponen. Paratypes: 4 ♂♂, 4 ♀♀: Ibidem, 14-V-2012, 2 ♂♂, 3 ♀♀, 15-V-2012, 2 ♂♂, 1 ♀, K. Nupponen leg. Genitalia slides: K. Nupponen prep. no. 5/2-I-2013 (♂), 1/2-I-2013 (♀). In coll. T. & K. Nupponen.

Diagnosis: Externally *S. mutanenorum* Nupponen, sp. n. is similar to most species in the *caramani* species-group, particularly *S. albisaxella* Nupponen & Nupponen, 2000 and *S. cultelloides* Nupponen & Sinev, 2011. Examination of the genitalia is required for safe determination. The genitalia of both sexes of *S. mutanenorum* are typical for the *caramani*-group, exhibiting diagnostic characters in shape of the gnathos, the valvae and tergum VIII in the male genitalia, as well as in shape of the sterigma and posterior part of sternum VII in the female genitalia. The combination of characters in the genitalia separate *S. mutanenorum* from its closest relatives as follows: Male: the valva is narrow and its dorsal margin not convex, tergum VIII is posteriorly only a little elongated with shallow medioposterior incurvation and the lateral process is club-like and distally incised; Female: posterior sclerotization of the sterigma is short and medioposterior margin of sternum VII is only shallowly concave without labiate sclerotization. On the basis of the genitalia, the closest relatives of *S. mutanenorum* are *S. eevae* Nupponen, 2007 and *S. albisaxella* Nupponen & Nupponen, 2000.

Description: Wingspan 8-9.5 mm. Head, collar, neck tuft and thorax pale brown with scattered paler scales. Haustellum white. Scape and flagellum brown, flagellum 0.5 x length of forewing. Labial palp white, distal half of segment II at lower surface and segment III more or less mixed with brown. Legs mixed with pale brown and dirty white. Abdomen dorsally fuscous, ventrally white. Forewing brown; disconnected white streak in fold from base to cell end, cut by moderately indistinct blackish brown spots subbasally, at 1/3 and 2/3; apical area mixed with dirty white scales. Hindwing fuscous.

Male genitalia (Figs. 26-27): Uncus reduced. Gnathos asymmetrical, robust, club-like; tip strongly sclerotized and medially incurvate. Phallus thick and short, bottle-shaped. Valva long and narrow, spatulate, subbasally slightly narrowed. Sternum VIII rectangular, 2.5 x wider than high. Tergum VIII subtriangular, distally with U-shaped incurvation; anterior margin concave; one lateral process reduced, opposite one club-like, long and robust, strongly sclerotized, distally incised.

Female genitalia (Figs. 28-29): Sterigma triangular, tip strongly sclerotized, distally blunt. Sternum VII subquadrangular, medioposterior margin only shallowly concave without labiate sclerotization. Apophyses anteriores 0.35 x length of apophyses posteriores.

Bionomy: The specimens were swept on low vegetation in sunshine, both in the morning and late afternoon. The larval host might be *Artemisia*, on which most of the specimens were collected. The habitat is a large and almost virgin sand dune area with a very rich flora and fauna (Fig. 2). The species occurs sympatrically with *S. distinctella* Nupponen, sp. n. (see above).

Distribution: W Kazakhstan.

Etymology: The species is dedicated to the brothers Marko and Tomi Mutanen, talented Finnish entomologists.

Remarks: *S. mutanenorum* Nupponen, sp. n. is placed in the *caramani* species-group s. str. (see PASSERIN d'ENTRÈVES & ROGGERO, 2012). The species inhabits sand dunes, contrary to the other species of the group, which occur in various kinds of steppe habitats.

Scythris nielseni Passerin d'Entrèves & Roggero, 2004

SW Kazakhstan, 43º 33' 53" N 51º 45' 19" E, 90 m, Karagie salt lake, 15-IX-2012, 1 ♀, K. Nupponen leg. Genitalia slide: K. Nupponen prep. no. 2/30-XII-2012.

Distribution: Afghanistan, Israel, Kazakhstan.

Remarks: The specimen was collected in the same locality where a male of *S. nielseni* was discovered one year earlier (see NUPPONEN, 2012; Fig. 6). The hitherto unknown female genitalia of the species are illustrated and described below.

Female genitalia (Figs. 30-31): Sterigma large and elongated; posterior 2/3 oval with narrowly sclerotized margin, medioposteriorly a subrectangular extension; anterior 1/3 widened, subtriangular, anterior margin concave, anterior corners elongated and divergent. Sternum VII complex, basically subtriangular with two parallel and strongly sclerotized cup-shaped extensions, attached to each other by broad belt. Apophyses anteriores 0.6 x length of apophyses posteriores.

Scythris niemineni Nupponen, sp. n.

Type material Holotype ♂ (Fig. 12): Kazakhstan, 48º 47' 20" N 60º 38' 55" E, 190 m, steppe by Irgiz river, Besoba Mts., 3-IX-2012, K. Nupponen leg. Genitalia slide: K. Nupponen prep. no. 1/31-XII-2012. In coll. T. & K. Nupponen.

Diagnosis: *S. niemineni* Nupponen, sp. n. belongs to the *passerini* species-group, comprising four species: *S. nivicolor* Meyrick, 1916, *S. fissurella* Bengtsson, 1996, *S. passerini* Bengtsson, 1997 and *S. atollicola* Nupponen, Saldaitis & Fischer, 2013. Externally all those species except *S. atollicola* are similar to each other, white or beige with sparse and indistinct pattern. *S. niemineni* is readily separated from the other four species by a combination of characters in the male genitalia: the phallus is bifurcate without a process before branching; prongs of the uncus are not cleft; posterolateral extensions of the valva are large and asymmetrical; posterior margin of tergum VIII is medially incurved and sternum VIII is posteriorly elongated with a slightly asymmetrical tip.

Description: Wingspan 12.5 mm. Head white, medially with pale brown patch. Neck tuft and scape white mixed with pale brown. Collar, haustellum and thorax white. Flagellum brown, 0.75 x length of forewing. Labial palp white, except lower surface of segment II distally pale brown. Legs cream white, tarsus and tibia more or less mixed with pale brown. Abdomen dorsally pale fuscous; ventrally cream white, at middle of sternum VIII a small dark brown spot. Forewing white; small but rather distinct dark fuscous spot at cell end; a few brown scales in middle sector from subbasal to apical area. Hindwing fuscous.

Male genitalia (Figs. 32-33): Uncus large, basically Y-shaped, laterally extended; dorsally at basal half two diverging reinforcements, ending in semicircular flap; ventrally at base a laterally elongated pouch-like process. Gnathos base a subtriangular plate; proximal arm attached to base by semicircular belt, shorter than uncus, slender and distally tapered, tip pointed. Phallus 0.8 x length of left valva, bifurcate from middle; branches 0.5 and 0.3 x length of phallus, longer one distally bent with pointed tip, shorter one basally curved and distally spatulate. Valva slightly asymmetrical, claviform, basal half of even width; apical half setose and spinose, with broad ventral extensions and semicircular subapical

flaps; ventral extension of left valva semicircular, that of right valva larger and subrectangular; left valva apically more elongated with larger subapical flap than right one. Vinculum digitate, half length of valva. Sternum VIII subpentagonal, posteriorly elongated and club-shaped, tip slightly asymmetrical; anterior margin deeply concave; near middle a sclerotized transverse reinforcement. Tergum VIII subrectangular, anterolaterally somewhat extended; posterior margin medially incurved; anterior margin deeply incurvate.

Female genitalia: Unknown.

Bionomy: The specimen came to artificial light at night. The habitat is a desert steppe with low gravelly slopes (Fig. 3).

Distribution: W Kazakhstan.

Etymology: The species is dedicated to my friend and colleague Marko Nieminen, a Finnish entomologist.

Remarks: *S. niemineni* Nupponen, sp. n. is placed in the *passerini* species-group. In the original description of *S. atollicola* Nupponen, Saldaitis & Fischer, 2013, the species was compared to *S. fissurella*, but not formally placed in any species-group. Thus, the formal placement of *S. atollicola* into the *passerini* species-group is confirmed here.

Scythris obliqua Falkovitsh, 1969

Kazakhstan, 44º 17' 05" N 66º 34' 45" E, 140 m, Baigakum 5 km E, sands, 10-V-2012, 2 ♂♂, 1 ♀, K. Nupponen leg.

Distribution: Kazakhstan, Mongolia, Uzbekistan.

Scythris olschwangi Nupponen & Nupponen, 2000

Kazakhstan, 48º 55' 29" N 58º 18' 49" E, 300 m, Emba village 17 km NE, 20-V-2012, 3 ♂♂, 2 ♀♀, K. Nupponen leg. Genitalia slide: K. Nupponen prep. no. 6/3-I-2013 (♂).

Distribution: W Kazakhstan, Russia (S Ural).

Remarks: The species was previously known only from the type locality in the southern Urals. **New to Kazakhstan**.

Scythris rotundella Nupponen, 2010

Kazakhstan, 46º 20' 21" N 59º 41' 49" E, 45 m, Aral Sea, N shore, Tamshima well, 28-IV-2012, 2 ♂♂, K. Nupponen leg.; Kazakhstan, 43º 56' 45"N 68º 14' 56" E, 910 m, Karatau Mts., Suyndyk river, 5-V-2012, 1 ♂, K. Nupponen leg.; Kazakhstan, 47º 43' 28" N 61º 27' 10" E, 100 m, Aralsk town 110 km N, 15-V-2012, 17 ♂♂, K. Nupponen leg.; Kazakhstan, 48º 55' 29" N 58º 18' 49" E, 300 m, Emba village 17 km NE, 20-V-2012, 1 ♂, K. Nupponen leg. Two genitalia preparations preserved in glycerol.

Distribution: Kazakhstan, Uzbekistan.

Scythris semifascia Nupponen, 2010

Kazakhstan, 43º 32' 52" N 67º 30' 09" E, 170 m, Syr-Darya river, tugai forest, Besaryk village 12 km WSW, 1-V-2012, 1 ♀, K. Nupponen leg.

Distribution: Kazakhstan, Uzbekistan.

Remarks: **New to Kazakhstan**. The species is only known from the tugai forests of the Syr-Darya valley.

Scythris setiella (Zeller, 1871)

Kazakhstan, 48º 55' 29" N 58º 18' 49" E, 300 m, Emba village 17 km NE, 20-V-2012, 1 ♂, K. Nupponen leg.

Distribution: W Kazakhstan, Russia (Volgo-Ural region).

Remarks: The species occurs only in a restricted area in steppes of the Volgo-Ural region. **New to Kazakhstan**. It is worth noting that the southernmost slopes of the Ural mountains, the Mugodshary range, lie in W Kazakhstan southwards from the River Emba. The Lepidoptera fauna of the

Mugodshary range is very similar to that of the Guberlinsky region on the Russian side of the southern Urals, sharing several species considered as endemic to the region, like a tortricid moth *Cochylimorpha ignicolorana* Junnilainen & Nupponen, 2000 and a geometrid moth *Scopula divisaria* (Christoph, 1893).

Scythris sigmoides Nupponen, sp. n.

Type material Holotype ♂ (Fig. 13): Kazakhstan, 44º 47' 42" N 65º 45' 20" E, 125 m, Kyzylorda town 17 km E, 30-IV-2012, K. Nupponen leg. In coll. T. & K. Nupponen. Paratypes: Idem, 49 ♂♂, 18 ♀♀. Genitalia slides: K. Nupponen prep. no. 2/31-XII-2012 (♂), 5/31-XII-2012 ♂), 3/30-XII-2012 (♀), 3/30-I-2012 (♀). 20 genitalia preparations preserved in glycerol. In coll. T. & K. Nupponen.

Diagnosis: *S. sigmoides* Nupponen, sp. n. is similar to several species in the *canescens* species-group s. l., and not separable with certainty from its closest relatives *S. karvoneni* Nupponen, 2010 and *Falkovitshella asthena* (Falkovitsh, 1972) by external appearance. The male genitalia of *S. sigmoides* are readily separated from those of its closest relatives by a widely U-shaped uncus, a sigmate phallus, and distally elongated valva with a large semicircular mediodorsal extension. In the female genitalia, the oval sterigma with digitate medial process is a diagnostic character (see also Remarks below).

Description: Wingspan 10-11 mm. Head, neck tuft and thorax cream white, sparsely mixed with pale fuscous. Collar, haustellum and scape cream white. Flagellum pale fuscous, 0.7 x length of forewing. Labial palp cream white, segments II and III more or less mixed with pale fuscous. Legs whitish cream mixed with pale fuscous. Abdomen dorsally grey, ventrally white; anal tuft cream-coloured. Forewing cream white; scattered pale fuscous scales over the wing, more densely in apical area; indistinct fuscous spots in fold at base, 0.2, 0.4, 0.6 and above tornus, defining a row of four cream white roundish patches; indistinct fuscous spots in costa subbasally and at 0.3. Hindwing pale fuscous.

Male genitalia (Figs. 34-35): Uncus large, distally widely U-shaped; anterior half extended backwards forming a sclerotized pouch. Gnathos base posterolaterally with small, inwardly directed and distally sclerotized digitate processes; distal arm rather short and slender, tapered, bent downwards, tip pointed. Phallus 0.65 x length of valva, slender, sigmate. Juxta narrow, half length of phallus. Valva slightly asymmetrical, broad, mediodorsally extended semicircularly; at dorsal side a digitate and apically rounded basal process; distal third elongated, shaped like a bird-head, that of right valva a little shorter and broader with wide flap near dorsal margin; subtriangular ventral processes at 2/3 of valva, attached to sclerotized fold of ventral margin, process of left valva longer; at 2/3 of left valva a semicircular process near dorsal margin. Vinculum rectangular. Sternum VIII basically rectangular, posteriorly bifurcate, posteromedial incurvation deep and U-shaped; anterior margin concave; at middle a sclerotized transverse reinforcement. Tergum VIII a subpentagonal plate; anterior margin deeply incurved and sclerotized.

Female genitalia (Figs. 36-37): Sterigma oval with shallow oblique mediolateral folds; round medial part less sclerotized, at middle a small digitate process. Sternum VII subrectangular, 1.25 x wider than high; posterior margin medially concave; anterior margin shallowly concave; sub-anteriorly a long transverse sclerotization. Apophyses anteriores 0.9 x length of apophyses posteriores.

Bionomy: The specimens came to artificial light at night. The habitat is a sand dune area, surrounded by wide semideserts (Fig. 4). The species occurs sympatrically with *Falkovitshella asthena* (Falkovitsh, 1972).

Distribution: S Kazakhstan.

Etymology: The species name alludes to a sigmate phallus in the male genitalia.

Remarks: *S. sigmoides* Nupponen, sp. n. is tentatively placed in the *canescens*-group of the genus *Scythris*. For further notes on the group and the genus *Falkovitshella*, see NUPPONEN (2012). The female genitalia illustrated by NUPPONEN (2012: p. 486, Fig. 14) as those of *F. mongholica* (Passerin d'Entrèves & Roggero, 2008) are actually those of *S. sigmoides*. The confusion happened when a single female was collected simultaneously with a male of *F. mongholica*. The genitalia of

the female did not coincide with those of any known female of the *canescens*-group. On the other hand, of the species recorded in that locality, *F. mongholica* was the only one with an unknown female. As the two specimens are superficially very similar, they were erroneously interpreted to be conspecific.

Scythris sublaminella Nupponen & Nupponen, 2000

Kazakhstan, 48º 55' 29" N 58º 18' 49" E, 300 m, Emba village 17 km NE, 20-V-2012, 2 ♂♂, K. Nupponen leg.

Distribution: W Kazakhstan, Russia (S Ural, C Volga region).

Remarks: The species was previously known from a few localities in the Volgo-Ural region. **New to Kazakhstan**.

Scythris syrdaryae Nupponen, sp. n.

Type material Holotype ♂ (Fig. 14): Kazakhstan, 43º 32' 52" N 67º 30' 09" E, 170 m, Syr-Darya river, tugai forest, Besaryk village 12 km WSW, 1-V-2012, K. Nupponen leg. In coll. T. & K. Nupponen. Paratypes: 62 ♂♂, 6 ♀♀: Idem, 51 ♂♂, 6 ♀♀; Kazakhstan, 44º 47' 42" N 65º 45' 20" E, 125 m, Kyzylorda town 17 km E, 30-IV-2012, 11 ♂♂, K. Nupponen leg. Genitalia slides: K. Nupponen prep. no. 3/31-XII-2012 (♂), 4/30-XII-2012 (♀). One genitalia preparation preserved in glycerol. In coll. T. & K. Nupponen.

Diagnosis: Externally *S. syrdaryae* Nupponen, sp. n. may be confused with *S. cirra* Falkovitsh, 1969, but differs from it by its larger size and more distinct forewing pattern. The genitalia of *S. syrdaryae* resemble those of species in the *cicadella* species-group, but the external appearance of the moth does not fit that group. The genitalia of *S. syrdaryae* are readily separated from those of the other species in the *cicadella*-group by broad valvae, a long and curved phallus and a robust and arched basal plate of the gnathos in the male genitalia, and by parallel cup-shaped processes of the sterigma in the female genitalia.

Description: Wingspan 13.5-15 mm. Head, collar, neck tuft, scape and thorax fuscous mixed with cream. Haustellum white. Flagellum brown, 0.6 x length of forewing. Labial palp: segment I white; segment II cream white except outer and lower surface from 0.2 to 0.9 and medial third of inner surface dark brown; segment III cream white, mixed with dark brown at lower surface. Legs cream white; forelegs, tarsus and tibia mixed with fuscous. Abdomen in male dorsally fuscous mixed with whitish grey, posterior margin of segments II-VII paler, ventrally white; in female dorsally ochreous and laterally covered by black scales, ventrally white. Forewing fuscous, with scattered white scales over the wing surface; whitish cream streak in fold from base to cell end, at 0.4 enlarged forming oblique patch, edged by indistinct and irregular blackish brown patches; small blackish brown spot at 0.8 in midwing; cream white spot basally at dorsal margin. Hindwing fuscous, basally paler.

Male genitalia (Figs. 38-39): Uncus a pair of short, robust and bent horn-like processes. Gnathos base robust, arched and furrowed; distally slightly extended; proximal arm as long as diameter of basal plate, straight and slender, tapered, distally bent, tip pointed. Phallus longer than valva, rather slender, curved and tapered, subapically bent. Valva short and broad, spatulate, distally slightly extended triangularly. Vinculum semicircular, as wide as base of valva. Sternum VIII pentagonal, anterior margin concave. Tergum VIII subrectangular, 3.5 x wider than high, anterior margin reinforced.

Female genitalia (Figs. 40-41): Sterigma consists of two parallel irregular plates, posteriorly furnished with cup-shaped processes and anteriorly connected to each other by a narrow sclerotized belt. Sternum VII subquadrangular, medioposteriorly with a weakly sclerotized subrectangular process. Apophyses anteriores 0.6 x length of apophyses posteriores.

Bionomy: The specimens came to artificial light at night. The habitat is a tugai forest in the Syr-Darya valley (Fig. 5). A few specimens were observed from moist patches in a sand dune area as well (Fig. 6).

Distribution: S Kazakhstan (Syr-Darya valley).

Etymology: The name of the species refers to its geographical origin, the valley of the River Syr-Darya.

Remark: *S. syrdaryae* Nupponen, sp. n. is tentatively placed in the *cicadella* species-group.

Scythris timoi Nupponen, 2009

Kazakhstan, 43º 32' 52" N 67º 30' 09" E, 170 m, Syr-Darya river, tugai forest, Besaryk village 12 km WSW, 1-V-2012, 5 ♂♂, K. Nupponen leg.

Distribution: Kazakhstan, Uzbekistan.

Remarks: **New to Kazakhstan**. The species is only known from tugai forests of the Syr-Darya valley.

Scythris tsherkesella Falkovitsh, 1969

Kazakhstan, 44º 17' 05" N 66º 34' 45" E, 140 m, Baigakum 5 km E, sands, 10-V-2012, 78 ♂♂, 6 ♀♀, K. Nupponen leg.; Kazakhstan, 46º 42' 47" N 61º 48' 19" E, 70 m, Aralsk town 15 km SE, 12-V-2012, 1 ♀, K. Nupponen leg.

Distribution: Kazakhstan, Mongolia, Turkmenistan, Uzbekistan.

Scythris tugaiensis Nupponen, 2009

Kazakhstan, 43º 32' 52" N 67º 30' 09" E, 170 m, Syr-Darya river, tugai forest, Besaryk village 12 km WSW, 1-V-2012, 1 ♂, K. Nupponen leg.

Distribution: Kazakhstan, Uzbekistan.

Remarks: **New to Kazakhstan**. The species is only known from the tugai forests of the Syr-Darya valley.

Scythris vadimi Sachkov, 2002

Kazakhstan, 44º 47' 42" N 65º 45' 20" E, 125 m, Kyzylorda town 17 km E, 30-IV-2012, 10 ♂♂, 2 ♀♀, K. Nupponen leg.; Kazakhstan, 43º 32' 52" N 67º 30' 09" E, 170 m, Syr-Darya river, tugai forest, Besaryk village 12 km WSW, 1-V-2012, 2 ♂♂, 1 ♀, K. Nupponen leg. Genitalia slides: K. Nupponen prep. no. 4/31-XII-2012 (♂), 4/2-I-2013 (♀).

Distribution: S Kazakhstan (Syr-Darya valley).

Remarks: The species was previously known only by the holotype, which was discovered in the same region as the present material. In the original description, *S. vadimi* is placed in the *subfasciata* species-group. However, that opinion is supported neither by the external appearance of the moth nor by the male and female genitalia. Characteristics of *S. vadimi* such as shape of segment VIII (♂) and sternum VII (♀) indicate its relationship with *S. valgella* Bengtsson, 2002, but it is doubtful whether the two species belong to the same species-group. The hitherto unknown female genitalia of the species are illustrated and described below, and the external appearance of the moth is illustrated for the first time (Fig. 15).

Female genitalia (Figs. 42-43): Sterigma subquadrangular, anterior corners elongated and diverging; anterior margin deeply incised, posterior margin concave, lateral margins convex. Sternum VII and sternum VI subrectangular, anteromedially semicircularly extended, posterior margin concave. Apophyses anteriores half length of apophyses posteriores.

Discussion

Altogether 63 described species of the family Scythrididae are known from Kazakhstan to date. Of the 53 species discovered by me and Pavel Gorbunov during 2008-2012, about 21% (11/53) were undescribed. That fits well with the results from the other areas of the Turanian region and Russian steppes (see NUPPONEN, 2009). The scythridid fauna of the central and eastern parts of Kazakhstan is completely unknown, and evidently there still occur many new species in huge areas of Kirgiz steppes and eastern mountain ranges of Kazakhstan.

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K. N.
Merenneidontie 19 D
FI-02320 Espoo
FINLANDIA / *FINLAND*
E-mail: Kari.Nupponen@kolumbus.fi

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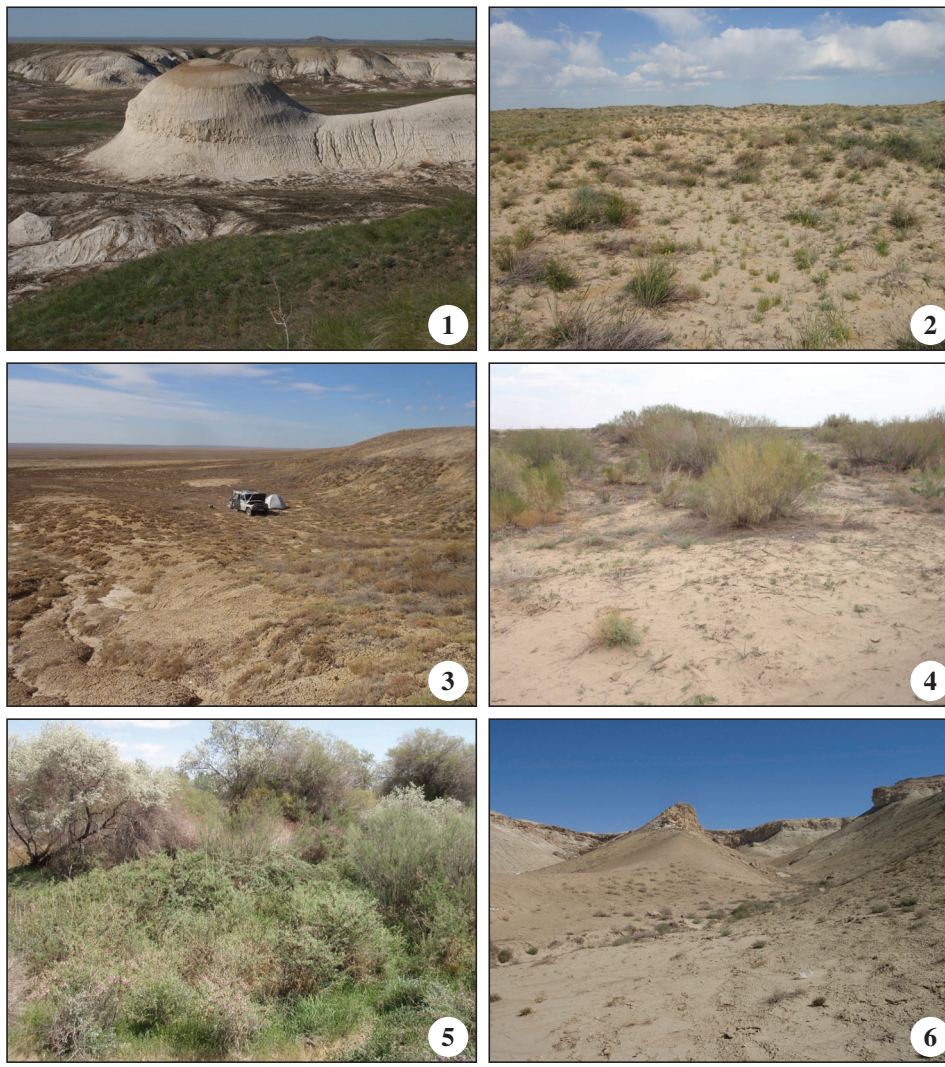
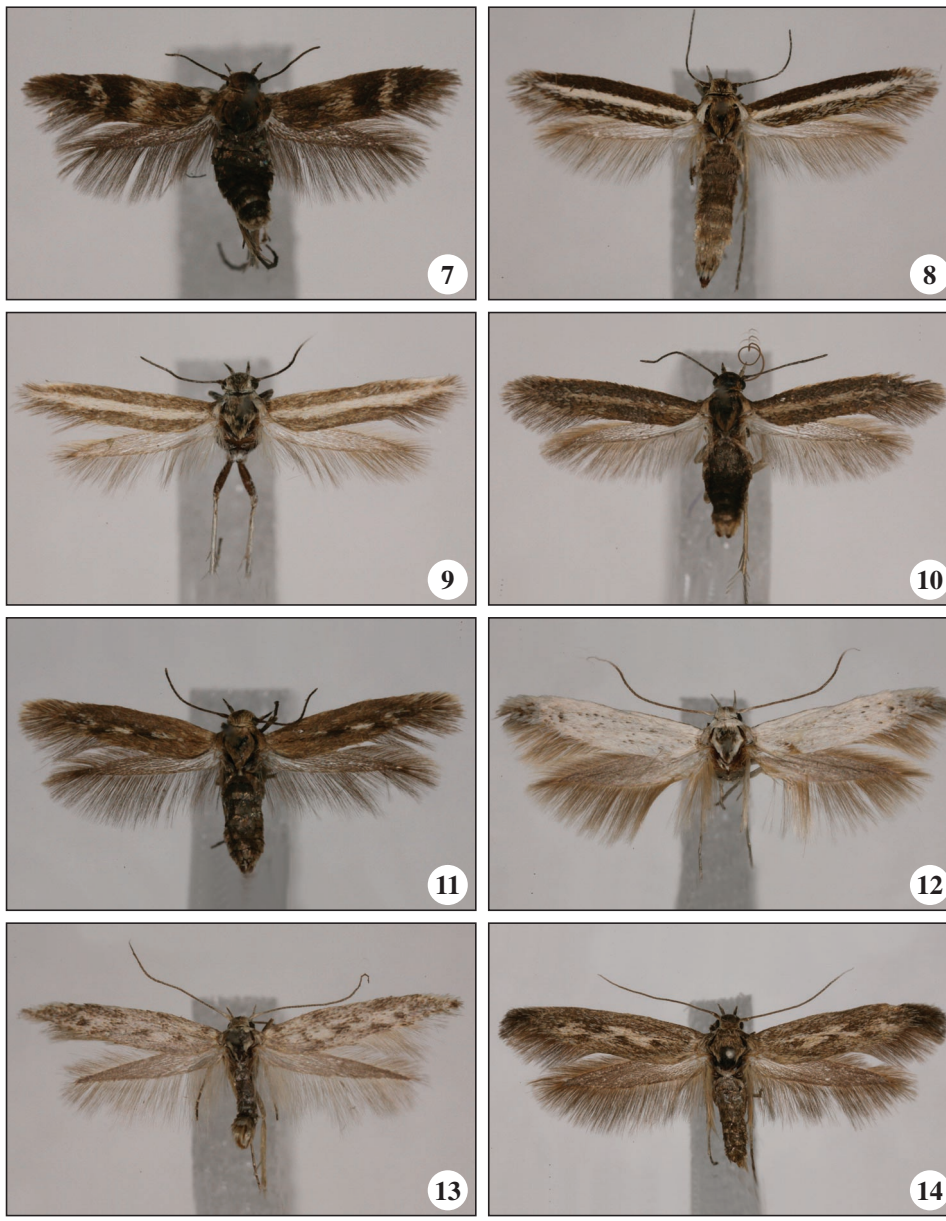
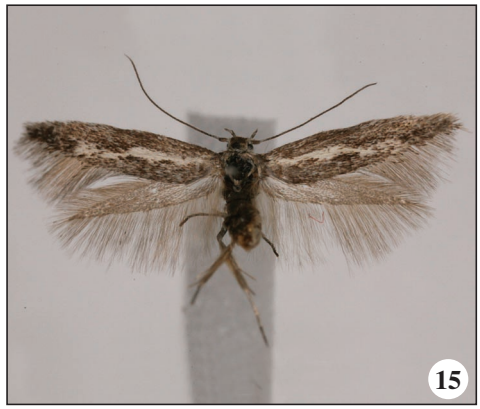
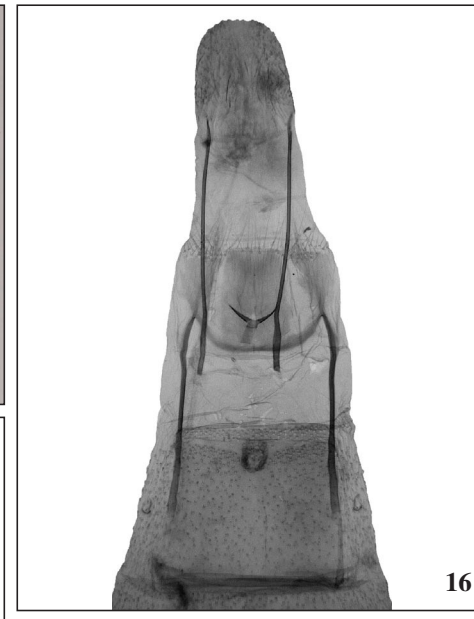


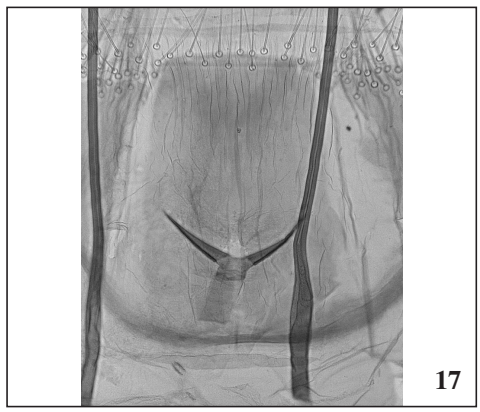
Figs. 1-6.– 1. Chalk hills and steppe slopes by the River Emba, W Kazakhstan. Habitat of *Scythris constricta* Nupponen, sp. n., *S. angustibasella* Nupponen, 2011, *S. elenae* Nupponen, 2000, *S. olschwangi* K. & T. Nupponen, 2000 and *S. brunneofasciella* Nupponen & Junnilainen, 2000. **2.** Sand dunes in Malye Barsuki desert, W Kazakhstan. Habitat of *Scythris distinctella* Nupponen, sp. n. and *S. mutanenorum* Nupponen, sp. n. **3.** Desert steppe by the River Irgiz in Besoba Mts., W Kazakhstan. Habitat of *Scythris niemineni* Nupponen, sp. n. 4. Sand dunes by Syr-Darya valley, S Kazakhstan. Habitat of *Scythris sigmoides* Nupponen, sp. n., *S. syrdaryae* Nupponen, sp. n. and *S. kabulella* Passerin d'Entrèves & Roggero, 2011. 5. Tugai forest and moist meadows by the River Syr-Darya, S Kazakhstan. Habitat of *Scythris syrdaryae* Nupponen, sp. n., *S. brandti* Passerin d'Entrèves & Roggero, 2008, *S. ghaemii* Bengtsson & Huemer, 2003, *S. timoi* Nupponen, 2009, *S. tugaiensis* Nupponen, 2009, *S. semifascia* Nupponen, 2010, *S. caballoides* Nupponen, 2009 and *S. vadimi* Sachkov, 2002. **6.** Gravelly slopes by Karagie salt lake, SW Kazakhstan. Habitat of *Scythris nielseni* Passerin d'Entrèves & Roggero, 2004. (Photo: K. Nupponen).



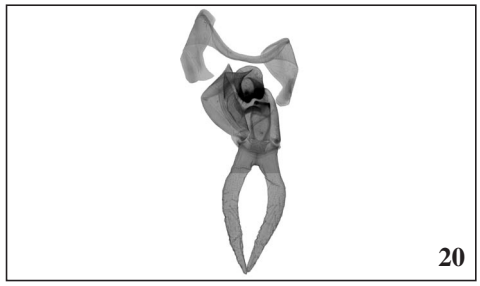
Figs. 7-14.–7. Imago (male, holotype) of *Scythris constricta* Nupponen, sp. n. **8.** Imago (female, holotype) of *Scythris distinctella* Nupponen, sp. n. **9.** Imago (male, paratype) of *Scythris distinctella* Nupponen, sp. n. **10.** Imago (male) of *Scythris arenicola* Nupponen, 2005 (W Kazakhstan). **11.** Imago (male, holotype) of *Scythris mutanenorum* Nupponen, sp. n. **12.** Imago (male, holotype) of *Scythris niemineni* Nupponen, sp. n. **13.** Imago (male, holotype) of *Scythris sigmoides* Nupponen, sp. n. **14.** Imago (male, holotype) of *Scythris syrdaryae* Nupponen, sp. n.

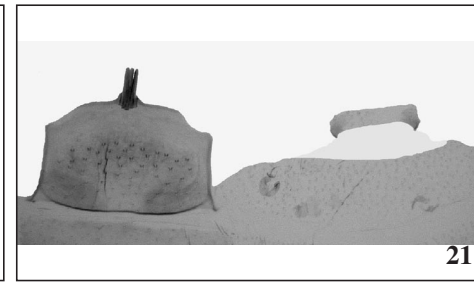


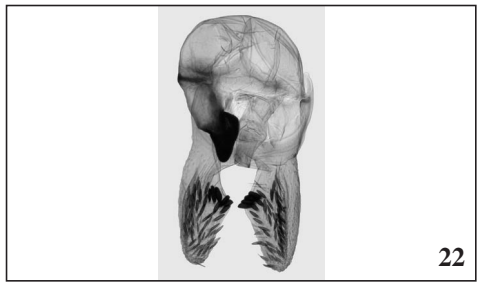


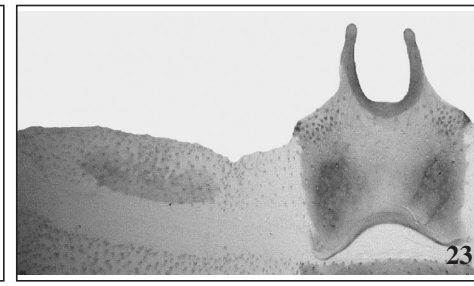


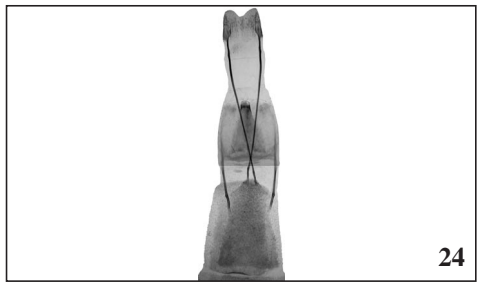
Figs. 15-19.– 15. Imago (male) of *Scythris vadimi* Sachkov, 2002 (S Kazakhstan, Syr-Darya valley). **16.** Female genitalia of *Scythris angustibasella* Nupponen, 2011 (W Kazakhstan; GP 3/2-I-2013 KN). **17.** Sterigma of *Scythris angustibasella* Nupponen, 2011 (W Kazakhstan; GP 3/2-I-2013 KN). **18.** Female genitalia of *Scythris aralensis* Nupponen, 2012 (W Kazakhstan; GP 1/30-XII-2012 KN). **19.** Sterigma of *Scythris aralensis* Nupponen, 2012 (W Kazakhstan; GP 1/30-XII-2012 KN).

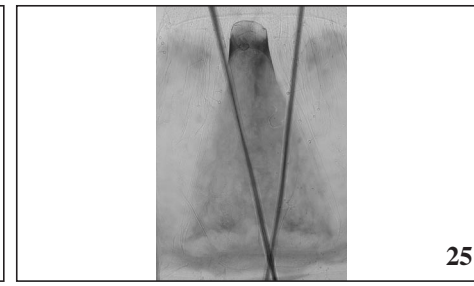


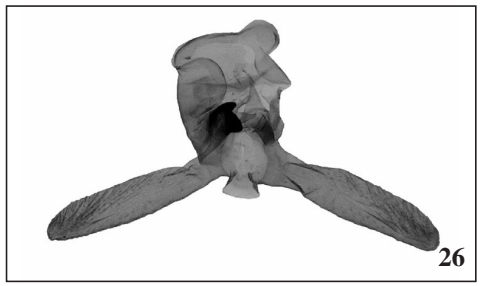


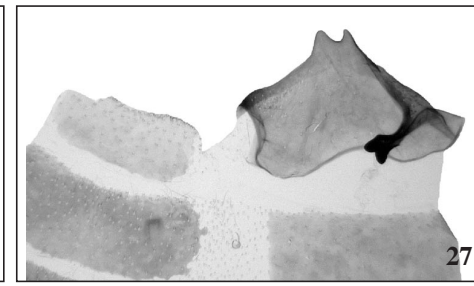




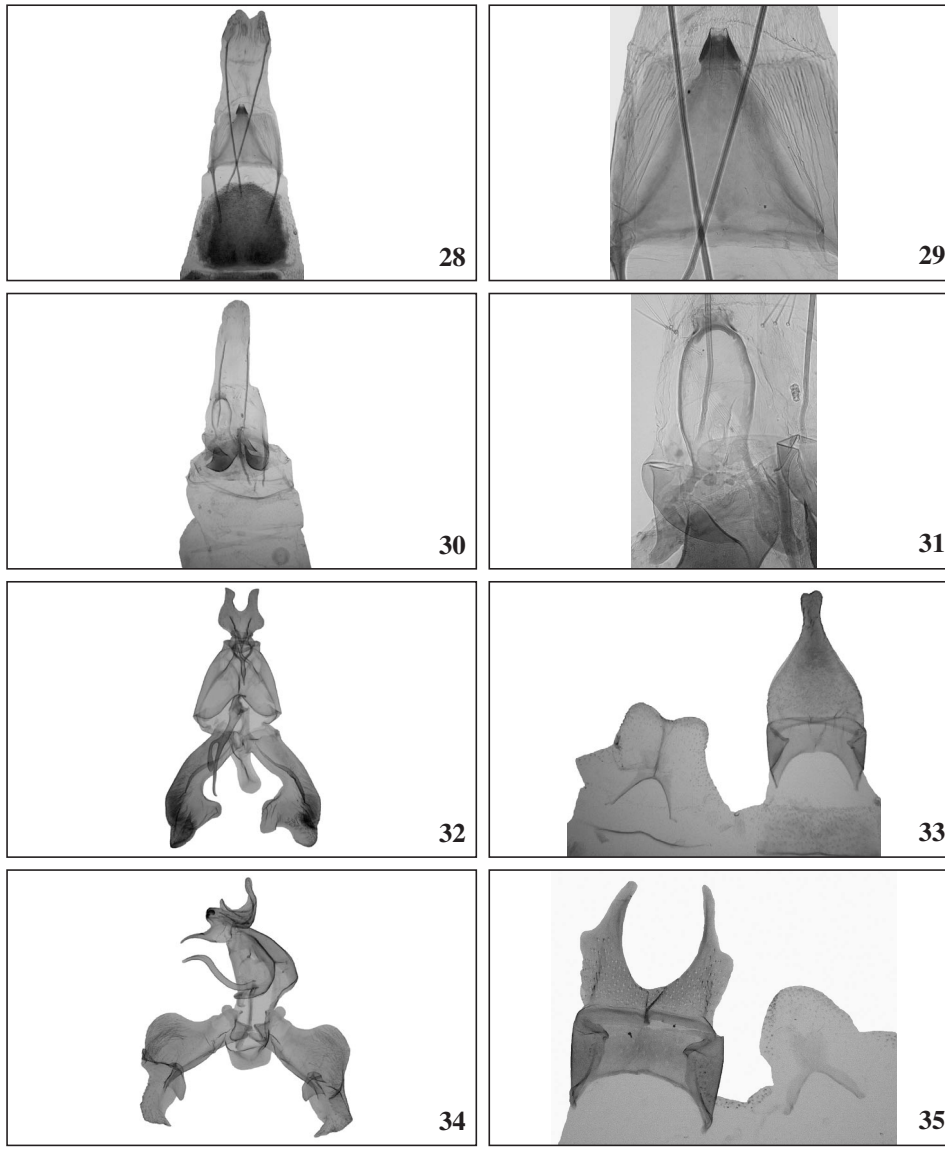




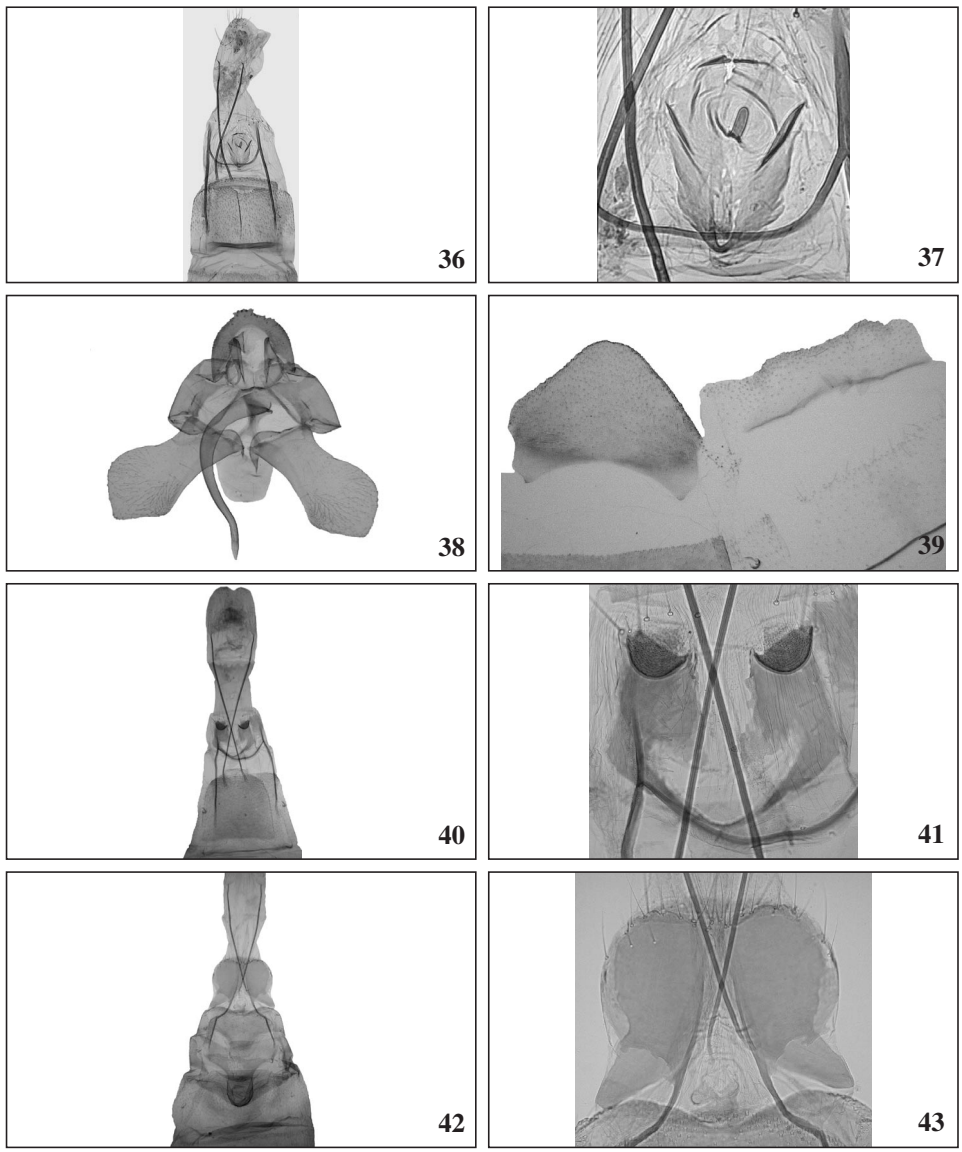




Figs. 20-27.– 20. Male genitalia and tergum VIII of *Scythris constricta* Nupponen, sp. n. (paratype; GP 7/2-I-2013 KN). **21.** Tergum VII (left) and sternum VIII (right) of *Scythris constricta* Nupponen, sp. n. (paratype; GP 7/2-I-2013 KN). **22.** Male genitalia of *Scythris distinctella* Nupponen, sp. n. (paratype; GP 6/2-I-2013 KN). **23.** Tergum VIII (right) and sternum VIII (left) of *Scythris distinctella* Nupponen, sp. n. (paratype; GP 6/2-I-2013 KN). **24.** Female genitalia of *Scythris distinctella* Nupponen, sp. n. (paratype; GP 2/2-I-2013 KN). **25.** Sterigma of *Scythris distinctella* Nupponen, sp. n. (paratype; GP 2/2-I-2013 KN). **26.** Male genitalia of *Scythris mutanenorum* Nupponen, sp. n. (paratype; GP 5/2-I-2013 KN). **27.** Tergum VIII (right) and sternum VIII (left) of *Scythris mutanenorum* Nupponen, sp. n. (paratype; GP 5/2-I-2013 KN).



Figs. 28-35.– 28. Female genitalia of *Scythris mutanenorum* Nupponen, sp. n. (paratype; GP 1/2-I-2013 KN). **29.** Sterigma of *Scythris mutanenorum* Nupponen, sp. n. (paratype; GP 1/2-I-2013 KN). **30.** Female genitalia of *Scythris nielseni* Passerin d'Entreves & Roggero, 2004 (SW Kazakhstan; GP 2/30-XII-2012 KN). **31.** Sterigma of *Scythris nielseni* Passerin d'Entreves & Roggero, 2004 (SW Kazakhstan; GP 2/30-XII-2012 KN). **32.** Male genitalia of *Scythris niemineni* Nupponen, sp. n. (holotype; GP 1/31-XII-2012 KN). **33.** Tergum VIII (left) and sternum VIII (right) of *Scythris niemineni* Nupponen, sp. n. (holotype; GP 1/31-XII-2012 KN). **34.** Male genitalia of *Scythris sigmoides* Nupponen, sp. n. (paratype; GP 5/31-XII-2012 KN). **35.** Tergum VIII (right) and sternum VIII (left) of *Scythris sigmoides* Nupponen, sp. n. (paratype; GP 5/31-XII-2012 KN).



Figs. 36-43.– 36. Female genitalia of *Scythris sigmoides* Nupponen, sp. n. (paratype; GP 3/30-XII-2012 KN). **37.** Sterigma of *Scythris sigmoides* Nupponen, sp. n. (paratype; GP 3/30-XII-2012 KN). **38.** Male genitalia of *Scythris syrdaryae* Nupponen, sp. n. (paratype; GP 3/31-XII-2012 KN). **39.** Tergum VIII (right) and sternum VIII (left) of *Scythris syrdaryae* Nupponen, sp. n. (paratype; GP 3/31-XII-2012 KN). **40.** Female genitalia of *Scythris syrdaryae* Nupponen, sp. n. (paratype; GP 4/30-XII-2012 KN). **41.** Sterigma of *Scythris syrdaryae* Nupponen, sp. n. (paratype; GP 4/30-XII-2012 KN). **42.** Female genitalia of *Scythris vadimi* Sachkov, 2002 (S Kazakhstan; GP 4/2-I-2013 KN). **43.** Sterigma of *Scythris vadimi* Sachkov, 2002 (S Kazakhstan; GP 4/2-I-2013 KN).